



STIC Search Report

EIC 1700

STIC Database Tracking Number: 144389

TO: Sanza McClendon
Location: REM 10D70
Art Unit : 1711
February 9, 2005

Case Serial Number: 10/672554

From: Les Henderson
Location: EIC 1700
REM 4B28 / 4A30
Phone: 571-272-2538

Leslie.henderson@uspto.gov

Search Notes

Sanza McClendon



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sanya Mc Clelland Examiner #: 75688 Date: _____
Art Unit: 1710 Phone Number 30 _____ Serial Number: 10/672,554
Mail Box and Bldg/Room Location: _____ Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Photoinitiator having triarylsulfonium triarylsulfinate ions
Inventors (please provide full names): Rajdeep S. Kalguthkar

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>La Henderson</u>	NA Sequence (#) _____	STN <u>\$ 879.45</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>4</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: <u>2/9/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>60</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>300</u>	Other _____	Other (specify) _____

Mellerson, Kendra

From: Unknown@Unknown.com
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ResponseHeader=Commercial Database Search Request

AccessDB#= 144389

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MyDate=Mon Feb 07 12:47:39 GMT-0500 (Eastern Standard Time) 2005

submitto=STIC-EIC1700@uspto.gov

Name=Sanza L McClendon

Empno=75688

Phone=2-1074

Artunit=1711

Office=10D70 rem

Serialnum=10/672,554

PatClass=522/31

Earliest=9/26/03

Format1=paper

Searchtopic=please search the composition comprising the anion and salt of claim 1. thank you

Comments=

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BIBDATASHEET

CONFIRMATION NO. 8850

Bib Data Sheet

SERIAL NUMBER 10/672,554	FILING DATE 09/26/2003 RULE	CLASS 522	GROUP ART UNIT 1711	ATTORNEY DOCKET NO. 58753US002
APPLICANTS Rajdeep S. Kalgutkar, St. Paul, MN; ** CONTINUING DATA ***** SMC ** FOREIGN APPLICATIONS ***** SMC				
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/17/2003				
Foreign Priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after met Allowance Verified and Acknowledged Examiner's Signature _____ Initials _____		STATE OR COUNTRY MN	SHEETS DRAWING 0	TOTAL CLAIMS 47
INDEPENDENT CLAIMS 5				
ADDRESS 32692 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL , MN 55133-3427				
TITLE Photoinitiators having triarylsulfonium and arylsulfinate ions				
FILING FEE RECEIVED 1404	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____	

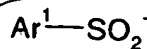
Abstract

5 Compositions are provided that include a photoinitiator system for free radical polymerization reactions. More specifically, the photoinitiator includes an arylsulfinate ion and a triarylsulfonium ion. Polymerization methods are also provided those include the photoinitiator in a photopolymerizable composition. Additionally, triarylsulfonium arylsulfinate salts are disclosed.

What is claimed is:

1. A composition comprising:

an arylsulfinate salt having an anion of Formula I



I

and having a cation that contains at least one carbon atom and either a positively charged nitrogen atom or a positively charged phosphorus atom, wherein Ar^1 is a substituted phenyl, an unsubstituted or substituted C_{7-30} aryl, or an unsubstituted or substituted C_{3-30} heteroaryl, said substituted Ar^1 having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group; and

a triarylsulfonium salt.

2. The composition of claim 1, wherein the Ar^1 group of the arylsulfinate salt is anthryl, naphthyl, acenaphthyl, phenanthryl, phenanthrenyl, perylenyl, anthracenyl, anthraquinonyl, anthronyl, biphenyl, terphenyl, 9,10-dihydroanthracenyl, or fluorenyl, wherein said Ar^1 group is unsubstituted or substituted with an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

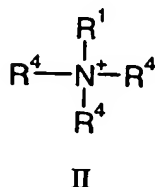
3. The composition of claim 1, wherein the Ar^1 group of the arylsulfinate salt is quinolinyl, isoquinolinyl, quinazolinyl, quinoxalinyl, cinnolinyl, benzofuranyl, benzomercaptophenyl, benzoxazolyl, benzothiazolyl, benzimidazolyl, indolyl, phthalazinyl, benzothiadiazolyl, benzotriazinyl, phenazinyl, phenanthridinyl, acridinyl, or indazolyl, wherein said Ar^1 group is unsubstituted or substituted with an electron withdrawing group or electron withdrawing group in combination with an electron donating group.

4. The composition of claim 1, wherein the Ar^1 group of the arylsulfinate salt is a substituted phenyl, an unsubstituted or substituted naphthyl, or an unsubstituted or substituted anthraquinonyl, said substituted Ar^1 group having a substituent that is an

electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

- 5 5. The composition of claim 1, wherein the Ar¹ group of the arylsulfinate salt is phenyl substituted with an electron withdrawing group selected from halo, cyano, fluoroalkyl, perfluoroalkyl, carboxy, alkoxycarbonyl, aryloxy, carbonyl, halocarbonyl, formyl, sulfo, alkoxysulfonyl, aryloxysulfonyl, perfluoroalkylsulfonyl, alkylsulfonyl, azo, alkenyl, alkynyl, dialkylphosphonato, diarylphosphonato, aminocarbonyl, or combinations thereof.
- 10 6. The composition of claim 1, wherein the anion of the arylsulfinate salt is 4-chlorobenzenesulfinate, 4-cyanobenzenesulfinate, 4-ethoxycarbonylbenzenesulfinate, 4-trifluoromethylbenzenesulfinate, 3-trifluoromethylbenzenesulfinate, 1-anthraquinone sulfinate, 1-naphthalenesulfinate, or 2-naphthalenesulfinate.
- 15 7. The composition of claim 1, wherein the cation of the arylsulfinate salt is a ring structure comprising a 4 to 12 member heterocyclic group having a positively charged nitrogen atom, said heterocyclic being saturated or unsaturated and having up to 3 heteroatoms selected from oxygen, sulfur, nitrogen, or combinations thereof, wherein
- 20 said ring structure is unsubstituted or substituted with a substituent selected from an alkyl, aryl, acyl, alkoxy, aryloxy, halo, mercapto, amino, hydroxy, azo, cyano, carboxy, alkoxycarbonyl, aryloxy, carbonyl, halocarbonyl, or combinations thereof.
- 25 8. The composition of claim 7, wherein said heterocyclic group is bicyclic.
9. The composition of claim 7, wherein said heterocyclic group is fused to a cyclic or bicyclic group that is saturated or unsaturated and that has 0 to 3 heteroatoms.
- 30 10. The composition of claim 7, wherein said heterocyclic group is fused to an aromatic ring having 0 to 3 heteroatoms.

11. The composition of claim 1, wherein the cation of the arylsulfinate salt is of Formula II



5 where

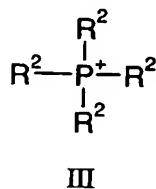
R^1 is an unsubstituted alkyl, an alkyl substituted with a hydroxy, an unsubstituted aryl, or an aryl substituted with an alkyl, hydroxy, or combinations thereof; and

10 each R^4 is independently hydrogen, an unsubstituted alkyl, an alkyl substituted with a hydroxy, an unsubstituted aryl, or an aryl substituted with an alkyl, hydroxy, or combinations thereof.

12. The composition of claim 11, wherein the cation of the arylsulfinate salt is a tetraalkylammonium ion.

15

13. The composition of claim 1, wherein the cation of the arylsulfinate salt is of Formula III



20 where each R^2 is independently an unsubstituted alkyl, an alkyl substituted with a hydroxy, an unsubstituted aryl, or an aryl substituted with an alkyl, hydroxy, or combinations thereof.

14. The composition of claim 1, wherein the anion of the arylsulfinate salt is a benzenesulfinate substituted with an electron withdrawing group electron selected from
25 halo, cyano, fluoroalkyl, perfluoroalkyl, carboxy, alkoxycarbonyl, aryloxycarbonyl, halocarbonyl, formyl, carbonyl, sulfo, alkoxysulfonyl, aryloxysulfonyl, perfluoroalkylsulfonyl, alkylsulfonyl, azo, alkenyl, alkynyl, dialkylphosphonato,

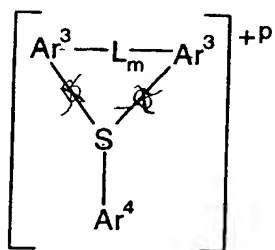
diarylphosphonato, aminocarbonyl, or combinations thereof and the cation of the arylsulfinate salt is a tetraalkylammonium ion.

15. The composition of claim 1, wherein the arylsulfinate salt is tetrabutylammonium 4-chlorobenzenesulfinate, tetrabutylammonium 4-cyanobenzenesulfinate, tetrabutylammonium 4-ethoxycarbonylsulfinate, tetrabutylammonium 4-trifluoromethylbenzenesulfinate, tetrabutylammonium 3-trifluoromethylbenzenesulfinate, tetrabutylammonium 1-naphthalenesulfinate, tetrabutylammonium 2-naphthalenesulfinate, or tetrabutylammonium 1-anthraquinonesulfinate.

16. The composition of claim 1, wherein the arylsulfinate salt is tetrabutylammonium 4-ethoxycarbonylsulfinate or tetrabutylammonium 4-cyanobenzenesulfinate.

15

17. The composition of claim 1, where the triarylsulfonium salt has a cation according to Formula V



V

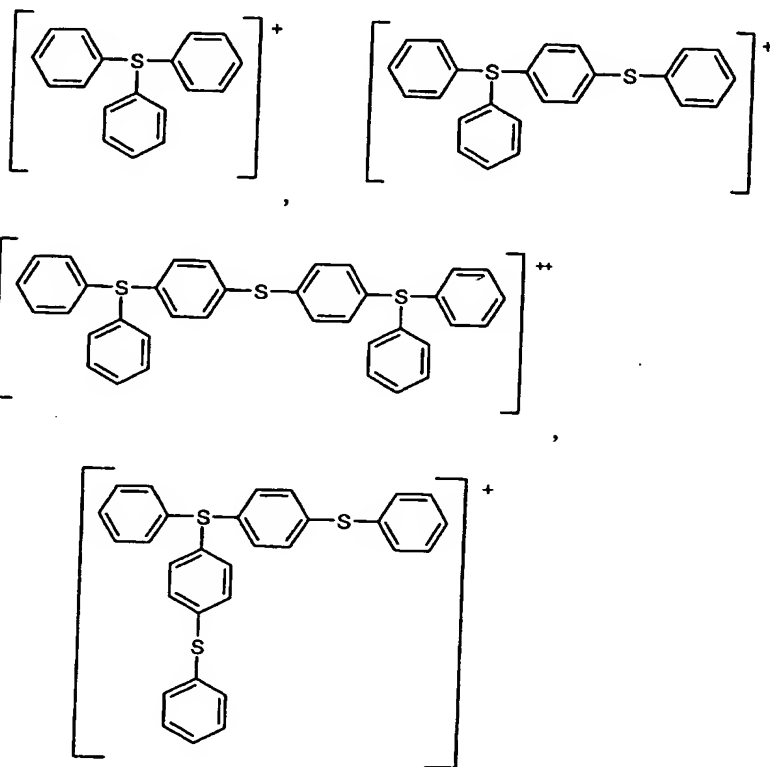
20 wherein

each Ar^3 and Ar^4 are independently a C_{6-30} aryl or a C_{3-30} heteroaryl that is substituted or substituted with one or more substituents, each substituent having up to 30 carbon atoms and up to 10 heteroatoms selected from N, S, O, P, As, Si, Sb, B, or Ge;

25 L is a divalent linking group selected from a single bond, oxo, thio, sulfinyl, carbonyl, sulfonyl, methylene, or imino; $\text{H}_2\text{C}=\text{N}-$
 p is an integer equal to or greater than 1; and
 m is an integer equal to 0 or 1.

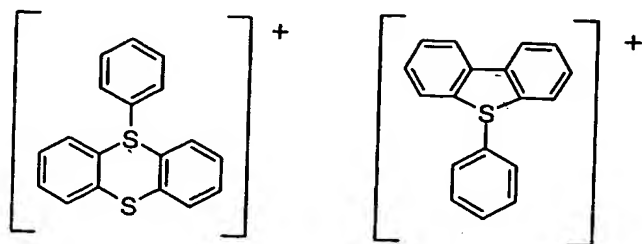
18. The composition of claim 1, wherein the triarylsulfonium salt has an anion selected from AsF_6^- , SbF_6^- , BF_4^- , PF_6^- , CF_3SO_3^- , $\text{HC}(\text{SO}_2\text{CF}_3)_2^-$, $\text{C}(\text{SO}_2\text{CF}_3)_3^-$, $\text{N}(\text{SO}_2\text{CF}_3)_2^-$, tetraphenylborate, tetra(pentafluorophenyl)borate, and tetra(3,5-bistrifluoromethylphenyl)borate, p-toluenesulfonate, or combinations thereof.

19. The composition of claim 1, wherein the triarylsulfonium salt has a cation selected from



or combinations thereof that are unsubstituted or substituted with one or more substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxy carbonyl, alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido, alkylcarbonylamido, aryloxy, aryloxy carbonyl, alkoxy sulfonyl, aryloxy sulfonyl, alkylsulfonamido, N-alkylaminocarbonyl, N-arylaminocarbonyl, N-alkylsulfamyl, N-arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkylsulfonyl, azo, boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano, trialkylsiloxy, or combinations thereof.

20. The composition of claim 1, where the triarylsulfonium salt has a cation selected from



5 or combinations thereof that are unsubstituted or substituted with one or more substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxy carbonyl, alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido, alkylcarbonylamido, aryloxy, aryloxy carbonyl, alkoxy sulfonyl, aryloxy sulfonyl, alkylsulfonamido, N-alkylaminocarbonyl, N-arylamino carbonyl, N-alkylsulfamyl, N-arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkyl sulfonyl, azo, boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano, trialkylsiloxo, or combinations thereof.

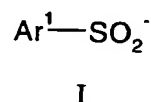
21. The composition of claim 1, wherein the triarylsulfonium salt has a cation selected from triphenylsulfonium, diphenylnaphthylsulfonium, tritolylsulfonium, anisyl diphenylsulfonium, 4-butoxyphenyl diphenylsulfonium, 4-tert-butylphenyl diphenylsulfonium, 4-chlorophenyl diphenylsulfonium, tris(4-phenoxyphenyl)sulfonium, 4-acetylphenyl diphenylsulfonium, tris(4-thiomethoxyphenyl)sulfonium, or 4-acetamidophenyl diphenylsulfonium.

22. The composition of claim 1, further comprising an ethylenically unsaturated monomer.

23. The composition of claim 22, wherein the ethylenically unsaturated monomer comprises a monoacrylate, monomethacrylate, diacrylate, dimethacrylate, polyacrylate, polymethacrylate, or combinations thereof.

24. The composition of claim 1, wherein the arylsulfinate salt has an oxidation potential in N,N-dimethylformamide of 0.0 to +0.4 volts versus a silver/silver nitrate reference electrode.

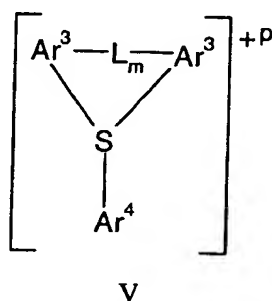
- 5 25. A composition comprising a an ethylenically unsaturated monomer and a triarylsulfonium arylsulfinate salt comprising:
an anion of Formula I



- 10 wherein Ar¹ is a substituted phenyl, an unsubstituted or substituted C₇₋₃₀ aryl, or an unsubstituted or substituted C₃₋₃₀ heteroaryl, said substituted Ar¹ having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group; and
and a triarylsulfonium cation.

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26. The composition of claim 25, wherein the triarylsulfonium arylsulfinate salt has a cation according to Formula V



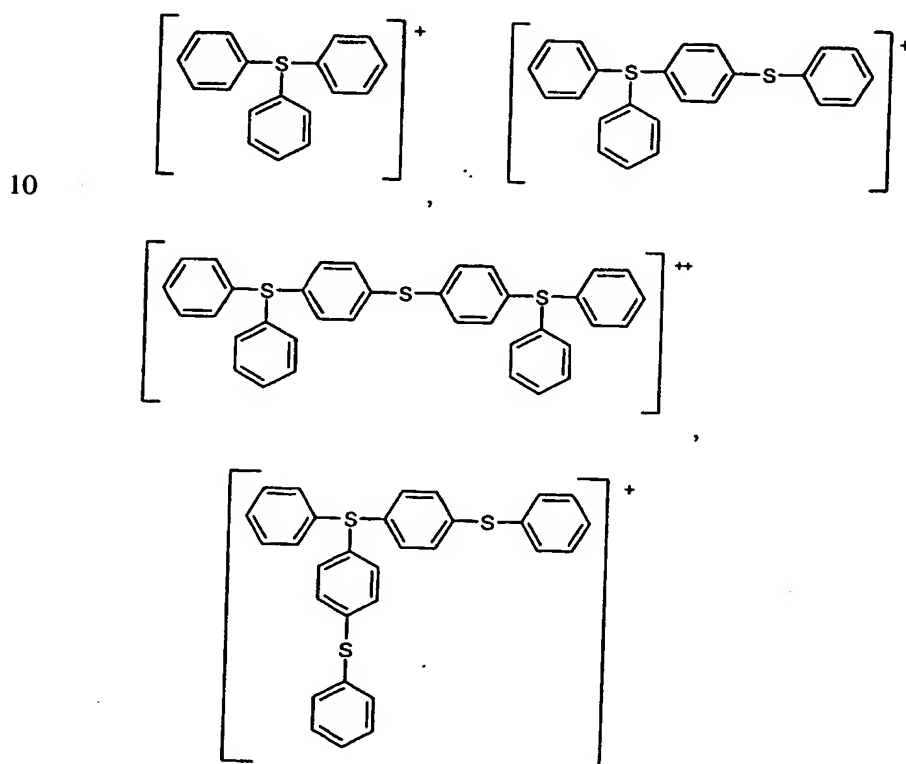
- 20 wherein

each Ar³ and Ar⁴ are independently a C₆₋₃₀ aryl or a C₃₋₃₀ heteroaryl that is substituted or substituted with one or more substituents, each substituent having up to 30 carbon atoms and up to 10 heteroatoms selected from N, S, O, P, As, Si, Sb, B, or Ge; and

- 25 L is a divalent linking group selected from a single bond, oxo, thio, sulfinyl, carbonyl, sulfonyl, methylene, or imino;
p is an integer equal to or greater than 1; and
m is an integer equal to 0 or 1.

27. The composition of claim 25, wherein the Ar¹ group of the anion of the triarylsulfonium arylsulfinate salt is substituted phenyl, unsubstituted or substituted naphthyl, or an unsubstituted or substituted anthraquinonyl, said substituted Ar¹ group having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

28. The composition of claim 25, where the triarylsulfonium salt has a cation selected from



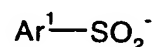
- or combinations thereof that are unsubstituted or substituted with one or more substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxycarbonyl, alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido, alkylcarbonylamido, aryloxy, aryloxycarbonyl, alkoxysulfonyl, aryloxysulfonyl, alkylsulfonamido, N-alkylaminocarbonyl, N-arylamino carbonyl, N-alkylsulfamyl, N-arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkylsulfonyl, azo,

boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano, trialkylsiloxo, or combinations thereof.

29. A method of photopolymerization comprising irradiating a photopolymerizable composition with actinic radiation until the photopolymerizable composition gels or hardens, said photopolymerizable composition comprising:

an ethylenically unsaturated monomer;

an arylsulfinate salt having an anion of Formula I



I

and having a cation that contains at least one carbon atom and either a positively charged nitrogen atom or a positively charged phosphorus atom, wherein Ar^1 is a substituted phenyl, an unsubstituted or substituted C_{7-30} aryl, or an unsubstituted or substituted C_{3-30} heteroaryl, said substituted Ar^1 having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group; and

a triarylsulfonium salt.

30. The method of claim 29, wherein the actinic radiation is in the range of 250 to 1000 nanometers.

31. The method of claim 29, wherein the actinic radiation is in the range of 250 to 850 nanometers.

32. The method of claim 29, wherein the arylsulfinate salt has an anion that is a benzenesulfinate substituted with an electron withdrawing group selected from halo, cyano, fluoroalkyl, perfluoroalkyl, carboxy, alkoxycarbonyl, aryloxycarbonyl, halocarbonyl, formyl, carbonyl, sulfo, alkoxysulfonyl, aryloxysulfonyl, perfluoroalkylsulfonyl, alkylsulfonyl, azo, alkenyl, alkynyl, dialkylphosphonato, diarylphosphonato, aminocarbonyl, or combinations thereof and the cation of the arylsulfinate salt is a tetraalkylammonium ion.

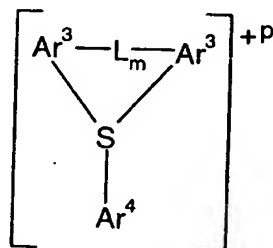
33. The method of claim 29, wherein the Ar¹ group of the arylsulfinate salt is naphthyl or anthraquinonyl that is unsubstituted or substituted with an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

5

34. The method of claim 29, wherein the arylsulfinate salt has a cation that is a tetraalkylammonium ion.

10

35. The method of claim 29, wherein the triarylsulfonium salt has a cation according to Formula V



V

wherein

15 each Ar³ and Ar⁴ are independently a C₆₋₃₀ aryl or a C₃₋₃₀ heteroaryl that is substituted or substituted with one or more substituents, each substituent having up to 30 carbon atoms and up to 10 heteroatoms selected from N, S, O, P, As, Si, Sb, B, or Ge; and

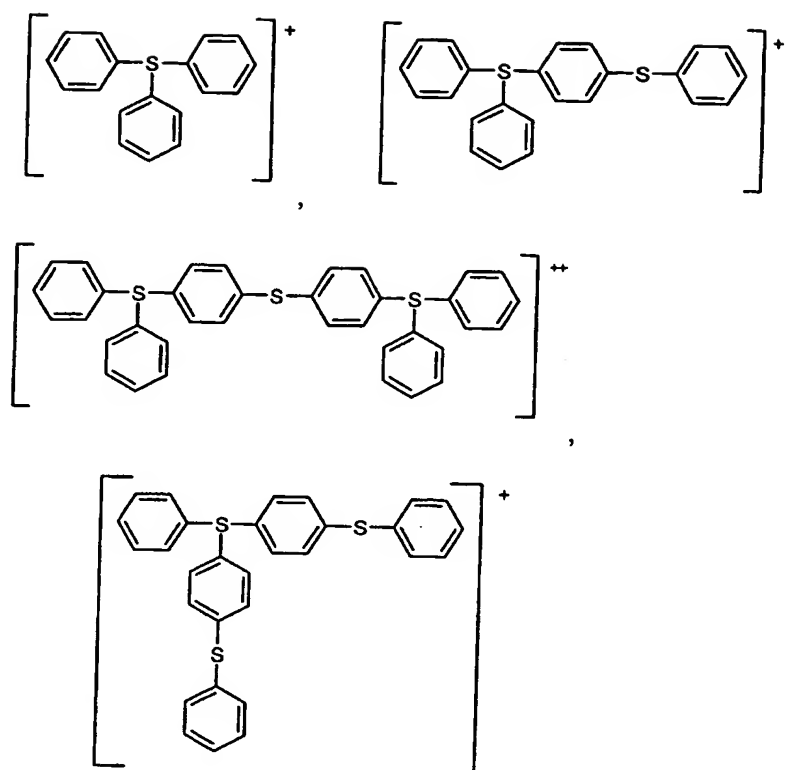
L is a divalent linking group selected from a single bond, oxo, thio, sulfinyl, carbonyl, sulfonyl, methylene, or imino;

20

p is an integer equal to or greater than 1; and

m is an integer equal to 0 or 1.

36. The method of claim 29, wherein the triarylsulfonium salt has a cation selected from



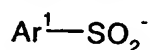
5 or combinations thereof that are unsubstituted or substituted with one or more substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxycarbonyl, alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido, alkylcarbonylamido, aryloxy, aryloxycarbonyl, alkoxysulfonyl, aryloxysulfonyl, alkylsulfonamido, N-alkylaminocarbonyl, N-arylaminocarbonyl, N-alkylsulfamyl, N-arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkylsulfonyl, azo, 10 boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano, trialkylsiloxo, or combinations thereof.

37. The method of claim 29, wherein the triarylsulfonium salt has an anion that is selected from AsF_6^- , SbF_6^- , BF_4^- , PF_6^- , CF_3SO_3^- , $\text{HC}(\text{SO}_2\text{CF}_3)_2^-$, $\text{C}(\text{SO}_2\text{CF}_3)_3^-$, 15 $\text{N}(\text{SO}_2\text{CF}_3)_2^-$, tetraphenylborate, tetra(pentafluorophenyl)borate, and tetra(3,5-bistrifluoromethylphenyl)borate, p-toluenesulfonate, or combinations thereof.

38. A method of photopolymerization comprising irradiating a photopolymerizable composition with actinic radiation until the photopolymerizable composition gels or hardens, said photopolymerizable composition comprising:

an ethylenically unsaturated monomer;

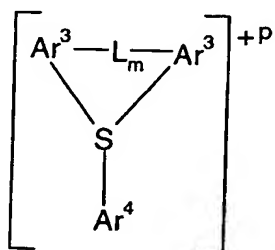
an arylsulfinate triarylsulfonium salt having an anion of Formula I



I

and having a cation that is an triarylsulfonium ion, wherein Ar^1 is a substituted phenyl, an unsubstituted or substituted C_{7-30} aryl, or an unsubstituted or substituted C_{3-30} heteroaryl, said substituted Ar^1 having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

39. The method of claim 38, wherein the cation of the triarylsulfonium arylsulfinate salt has a cation according to Formula V



V

wherein

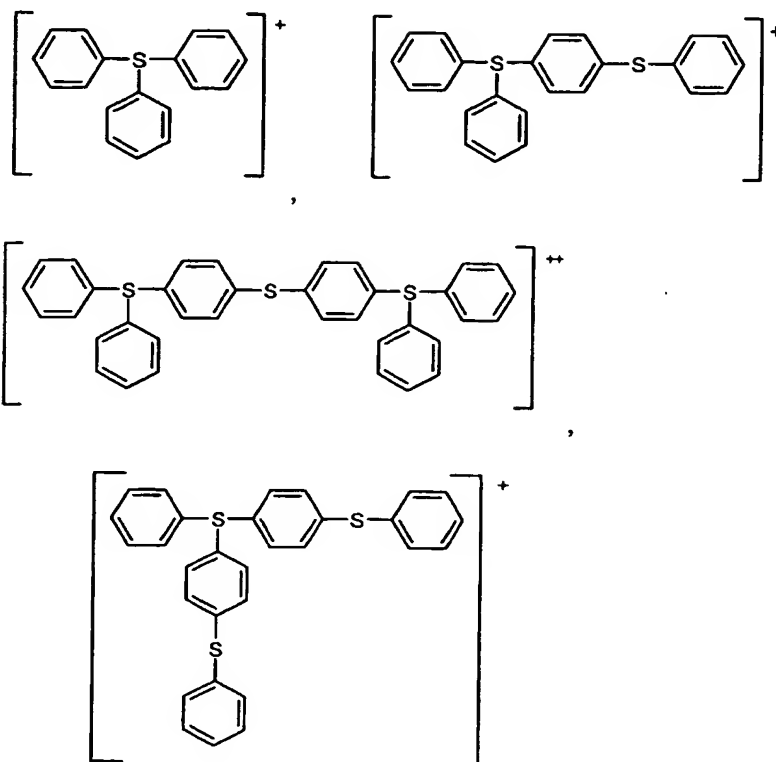
each Ar^3 and Ar^4 are independently a C_{6-30} aryl or a C_{3-30} heteroaryl that is substituted or substituted with one or more substituents, each substituent having up to 30 carbon atoms and up to 10 heteroatoms selected from N, S, O, P, As, Si, Sb, B, or Ge; and

L is a divalent linking group selected from a single bond, oxo, thio, sulfinyl, carbonyl, sulfonyl, methylene, or imino;

p in an integer equal to or greater than 1; and

m is an integer equal to 0 or 1.

40. The method of claim 38, wherein the cation of the triarylsulfonium arylsulfinate is selected from



5

or combinations thereof that are unsubstituted or substituted with one or more substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxycarbonyl, alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido, alkylcarbonylamido, aryloxy, aryloxy carbonyl, alkoxysulfonyl, aryloxysulfonyl, alkylsulfonamido, N-alkylaminocarbonyl, N-arylaminocarbonyl, N-alkylsulfamyl, N-arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkylsulfonyl, azo, boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano, trialkylsiloxy, or combinations thereof.

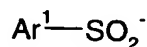
15

41. The method of claim 38, wherein the triarylsulfonium arylsulfinate salt has an anion that is a benzenesulfinate substituted with an electron withdrawing group selected from halo, cyano, fluoroalkyl, perfluoroalkyl, carboxy, alkoxycarbonyl, aryloxy carbonyl, halocarbonyl, formyl, carbonyl, sulfo, alkoxysulfonyl,

aryloxysulfonyl, perfluoroalkylsulfonyl, alkylsulfonyl, azo, alkenyl, alkynyl, dialkylphosphonato, diarylphosphonato, aminocarbonyl, or combinations thereof.

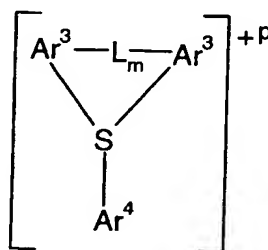
42. The method of claim 38, wherein the Ar¹ group of the triarylsulfonium arylsulfinate salt is naphthyl or anthraquinonyl that is unsubstituted or substituted with an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.

43. A triarylsulfonium arylsulfinate salt comprising:
an anion of Formula I



I

wherein Ar¹ is a substituted phenyl, an unsubstituted or substituted C₇₋₃₀ aryl, or an unsubstituted or substituted C₃₋₃₀ heteroaryl, said substituted Ar¹ having a substituent that is an electron withdrawing group or an electron withdrawing group in combination with an electron donating group; and
a cation according to Formula V



V

- wherein

each Ar³ and Ar⁴ are independently a C₆₋₃₀ aryl or a C₃₋₃₀ heteroaryl that is substituted or substituted with one or more substituents, each substituent having up to 30 carbon atoms and up to 10 heteroatoms selected from N, S, O, P, As, Si, Sb, B, or Ge; and

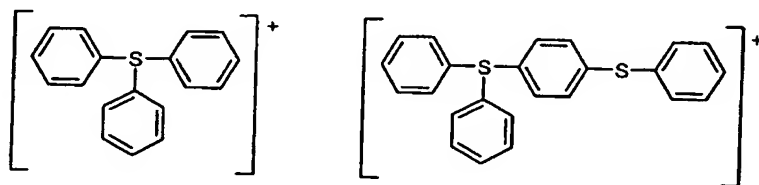
- L is a divalent linking group selected from a single bond, oxo, thio, sulfinyl, carbonyl, sulfonyl, methylene, or imino;

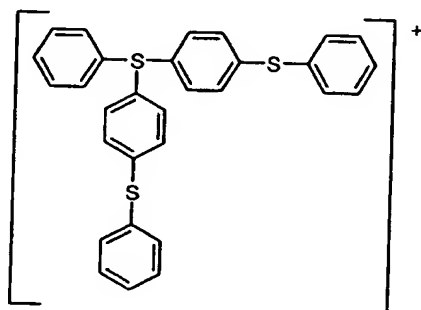
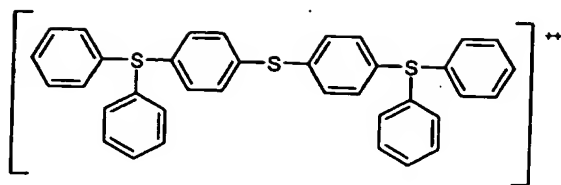
p is an integer equal to or greater than 1; and

m is an integer equal to 0 or 1.

Mixture
Species
not aryl
vs. compound
only cation

44. The triarylsulfonium arylsulfinate salt of claim 43, wherein the Ar¹ group of the arylsulfinate salt is a substituted phenyl, a unsubstituted or substituted naphthyl, or an unsubstituted or substituted anthraquinonyl, said Ar¹ group having an electron withdrawing group or an electron withdrawing group in combination with an electron donating group.
45. The triarylsulfonium arylsulfinate salt of claim 43, wherein the Ar¹ group of the arylsulfinate anion is phenyl substituted with an electron withdrawing group selected from halo, cyano, fluoroalkyl, perfluoroalkyl, carboxy, alkoxycarbonyl, aryloxy carbonyl, halocarbonyl, formyl, carbonyl, sulfo, alkoxysulfonyl, aryloxysulfonyl, perfluoroalkylsulfonyl, alkylsulfonyl, azo, alkenyl, alkynyl, dialkylphosphonato, diarylphosphonato, aminocarbonyl, or combinations thereof.
46. The triarylsulfonium arylsulfinate salt of claim 43, wherein the triarylsulfonium arylsulfinate salt has an anion selected from 4-chlorobenzenesulfinate, 4-cyanobenzenesulfinate, 4-ethoxycarbonylbenzenesulfinate, 4-trifluoromethylbenzenesulfinate, 3-trifluoromethylbenzenesulfinate, 1-anthraquinone sulfinate, 1-naphthalenesulfinate, or 2-naphthalenesulfinate.
47. The triarylsulfonium arylsulfinate salt of claim 43, wherein the triarylsulfonium arylsulfinate salt has a cation selected from





or combinations thereof that are unsubstituted or substituted with one or more
substituents selected from alkyl, alkylcarbonyloxy, alkynyl, alkoxy, alkoxy carbonyl,
5 alkylthio, arylthio, aralkyl, alkenyl, aryl, arylcarbonyloxy, arylcarbonylamido,
alkylcarbonylamido, aryloxy, aryloxy carbonyl, alkoxysulfonyl, aryloxy sulfonyl,
alkylsulfonamido, N-alkylaminocarbonyl, N-arylaminocarbonyl, N-alkylsulfamyl, N-
arylsulfamyl, alkylsulfonyl, arylsulfonyl, perfluoroalkyl, perfluoroalkylsulfonyl, azo,
boryl, halo, hydroxy, mercapto, diarylarsino, diarylstibino, trialkylgermano,
10 trialkylsiloxo, or combinations thereof.

=> d his

(FILE 'HOME' ENTERED AT 08:49:57 ON 09 FEB 2005)

FILE 'REGISTRY' ENTERED AT 08:50:53 ON 09 FEB 2005

ACTIVATE MCC554/A

L1 SCR 1795

L2 SCR 1838

L3 SCR 2127

L4 STR

L5 1332 SEA FILE=REGISTRY SSS FUL L4 AND L1 AND L2 AND L3

ACTIVATE MCC554A/Q

L6 STR

ACTIVATE MCC554B/Q

L7 SCR 2040

L8 SCR 1840

L9 STR

L10 QUE ABB=ON PLU=ON L9 AND L7 AND L8

FILE 'LREGISTRY' ENTERED AT 08:54:38 ON 09 FEB 2005

L11 STR L4

FILE 'REGISTRY' ENTERED AT 08:59:50 ON 09 FEB 2005

L12 50 S L11 SSS SAM SUB=L5

L13 4 S L10 SAM

FILE 'LREGISTRY' ENTERED AT 09:25:31 ON 09 FEB 2005

L14 0 S L3 AND L7 AND L8 AND L9 SAM

FILE 'REGISTRY' ENTERED AT 09:39:21 ON 09 FEB 2005

L15 18 S L3 AND L7 AND L8 AND L9 SAM

L16 SCR 1538

L17 13 S L16 AND L7 AND L8 AND L9 SAM

L18 4686 S L16 AND L7 AND L8 AND L9 FUL

L19 22 S L6 SAM

L20 50 S L7 AND L6 SAM

DEL MCC554A/Q

DEL MCC554B/Q

SAV L18 MCC554A/A

L21 0 S L1 AND L2 AND L3 AND L4 AND L6

L22 34 S L1 AND L2 AND L3 AND L4 AND L6 FUL

SAV L22 MCC554B/A

FILE 'HCA' ENTERED AT 09:59:34 ON 09 FEB 2005

L23 4691 S L18
 L24 2593 S L5
 L25 49 S L22
 L26 4 S L23 AND L24
 L27 0 S L25 AND L23

FILE 'REGISTRY' ENTERED AT 10:04:15 ON 09 FEB 2005

L28 0 S L22 AND L18
 L29 0 S L1 AND L2 AND L3 AND L7 AND L8 AND L4 AND L9 AND L6 SAM
 L30 0 S L1 AND L2 AND L3 AND L7 AND L8 AND L4 AND L9 AND L6 FUL

FILE 'HCA' ENTERED AT 10:07:25 ON 09 FEB 2005

FILE 'REGISTRY' ENTERED AT 10:28:58 ON 09 FEB 2005

L31 3 S L5 AND L18

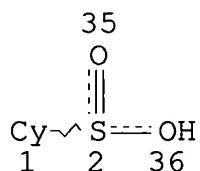
FILE 'HCA' ENTERED AT 10:29:52 ON 09 FEB 2005

L32 1 S L31
 L33 4 S L32 OR L26

FILE 'REGISTRY' ENTERED AT 10:31:38 ON 09 FEB 2005

=> => d que stat l5

L1 SCR 1795
 L2 SCR 1838
 L3 SCR 2127
 L4 STR



NODE ATTRIBUTES:

CONNECT IS E3 RC AT 2
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 1
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS M3-X30 C AT 1

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

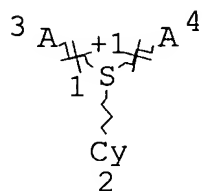
L5 1332 SEA FILE=REGISTRY SSS FUL L4 AND L1 AND L2 AND L3

100.0% PROCESSED 296577 ITERATIONS
SEARCH TIME: 00.00.04

1332 ANSWERS

=> d que stat 118

L7 SCR 2040
L8 SCR 1840
L9 STR



NODE ATTRIBUTES:

CHARGE IS E+1 AT 1
NSPEC IS R AT 3
NSPEC IS R AT 4
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 2
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M3-X30 C AT 2

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

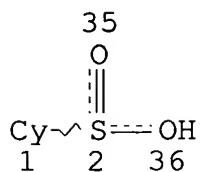
L16 SCR 1538
L18 4686 SEA FILE=REGISTRY SSS FUL L16 AND L7 AND L8 AND L9

100.0% PROCESSED 271550 ITERATIONS
SEARCH TIME: 00.00.05

4686 ANSWERS

=> d que stat 122

L1 SCR 1795
L2 SCR 1838
L3 SCR 2127
L4 STR



NODE ATTRIBUTES:

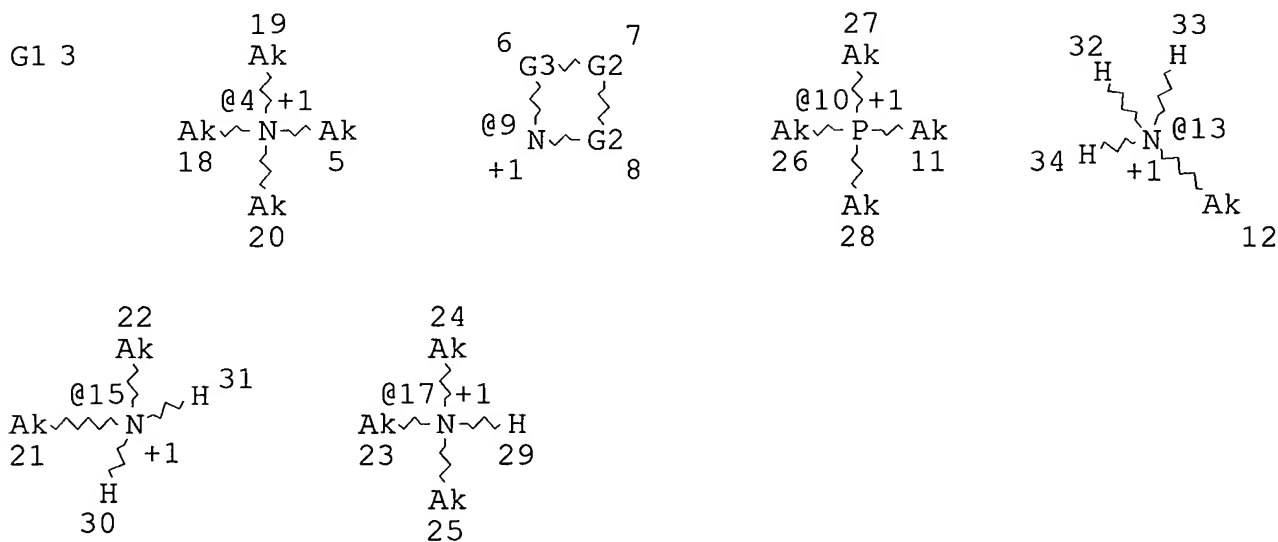
CONNECT IS E3 RC AT 2
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 1
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M3-X30 C AT 1

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L6 STR



VAR G1=4/9/10/13/15/17

VAR G2=C/N/O/S

REP G3=(1-9) C

NODE ATTRIBUTES:

CHARGE IS E+1 AT 4
CHARGE IS E+1 AT 9
CHARGE IS E+1 AT 10
CHARGE IS E+1 AT 13
CHARGE IS E+1 AT 15

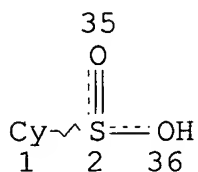
CHARGE IS E+1 AT 17
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 30

STEREO ATTRIBUTES: NONE
L22 34 SEA FILE=REGISTRY SSS FUL L1 AND L2 AND L3 AND L4 AND L6

100.0% PROCESSED 264112 ITERATIONS 34 ANSWERS
SEARCH TIME: 00.00.04

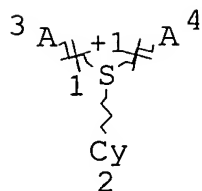
=> d que stat l31
L1 SCR 1795
L2 SCR 1838
L3 SCR 2127
L4 STR



NODE ATTRIBUTES:
CONNECT IS E3 RC AT 2
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 1
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M3-X30 C AT 1

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L5 1332 SEA FILE=REGISTRY SSS FUL L4 AND L1 AND L2 AND L3
L7 SCR 2040
L8 SCR 1840
L9 STR



NODE ATTRIBUTES:

CHARGE IS E+1 AT 1
 NSPEC IS R AT 3
 NSPEC IS R AT 4
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 2
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS M3-X30 C AT 2

GRAPH ATTRIBUTES:

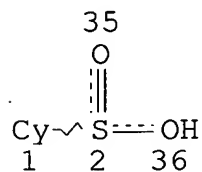
RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L16 SCR 1538
 L18 4686 SEA FILE=REGISTRY SSS FUL L16 AND L7 AND L8 AND L9
 L31 3 SEA FILE=REGISTRY ABB=ON PLU=ON L5 AND L18

=> => d que stat 133

L1 SCR 1795
 L2 SCR 1838
 L3 SCR 2127
 L4 STR



NODE ATTRIBUTES:

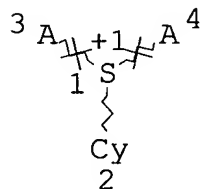
CONNECT IS E3 RC AT 2
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 1
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS M3-X30 C AT 1

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L5 1332 SEA FILE=REGISTRY SSS FUL L4 AND L1 AND L2 AND L3
L7 SCR 2040
L8 SCR 1840
L9 STR



NODE ATTRIBUTES:

CHARGE IS E+1 AT 1
NSPEC IS R AT 3
NSPEC IS R AT 4
DEFAULT MLEVEL IS ATOM
GGCAT IS UNS AT 2
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M3-X30 C AT 2

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L16 SCR 1538
L18 4686 SEA FILE=REGISTRY SSS FUL L16 AND L7 AND L8 AND L9
L23 4691 SEA FILE=HCA ABB=ON PLU=ON L18
L24 2593 SEA FILE=HCA ABB=ON PLU=ON L5
L26 4 SEA FILE=HCA ABB=ON PLU=ON L23 AND L24
L31 3 SEA FILE=REGISTRY ABB=ON PLU=ON L5 AND L18
L32 1 SEA FILE=HCA ABB=ON PLU=ON L31
L33 4 SEA FILE=HCA ABB=ON PLU=ON L32 OR L26

=> d l33 1-4 cbib abs hitstr hitind

L33 ANSWER 1 OF 4 HCA COPYRIGHT 2005 ACS on STN
137:391105 Heat-sensitive material composition for heat-sensitive
lithographic printing plate precursors. Shimada, Kazuto; Sorori,
Tadahiro; Yagihara, Morio (Fuji Photo Film Co., Ltd., Japan). Jpn.
Kokai Tokkyo Koho JP 2002341519 A2 20021127, 34 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 2001-147429 20010517.

AB The title composition contains heat-sensitive radical-generating compound

R-SO₂-M⁺ (R = alkyl, aryl; M⁺ = sulfonium, iodonium, diazonium, ammonium, etc.) and a compound which change the phys. and chemical properties by reacting with the radical. The composition shows the

high

sensitivity towards heat to generates irreversible property change and is suitable for use manufacturing heat-sensitive lithog. printing plate precursors.

IT 475996-99-7 475997-00-3 475997-02-5
475997-03-6 475997-04-7 475997-05-8
475997-06-9 475997-08-1 475997-10-5
475997-12-7

RL: TEM (Technical or engineered material use); USES (Uses)
(radical initiators; heat-sensitive material composition for

lithog.

printing plate precursors)

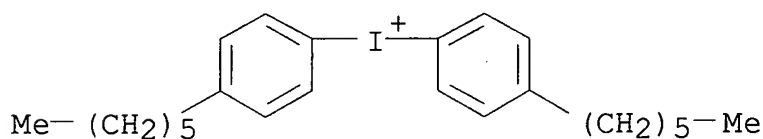
RN 475996-99-7 HCA

CN Iodonium, bis(4-hexylphenyl)-, benzenesulfinate (9CI) (CA INDEX NAME)

CM 1

CRN 249300-48-9

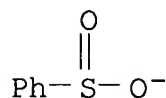
CMF C24 H34 I



CM 2

CRN 16722-50-2

CMF C6 H5 O2 S

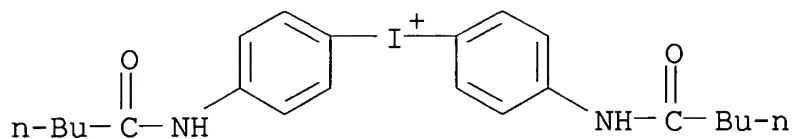


RN 475997-00-3 HCA

CN Iodonium, bis[4-[(1-oxopentyl)amino]phenyl]-, benzenesulfinate (9CI)
(CA INDEX NAME)

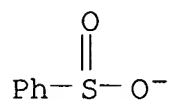
CM 1

CRN 377781-11-8
CMF C22 H28 I N2 O2



CM 2

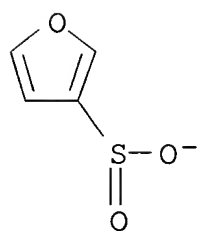
CRN 16722-50-2
CMF C6 H5 O2 S



RN 475997-02-5 HCA
CN Iodonium, (4-butoxyphenyl)phenyl-, 3-furansulfinatate (9CI) (CA INDEX NAME)

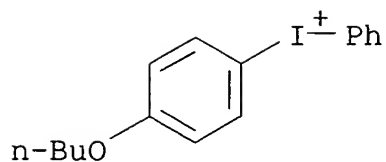
CM 1

CRN 475997-01-4
CMF C4 H3 O3 S



CM 2

CRN 105052-86-6
CMF C16 H18 I O



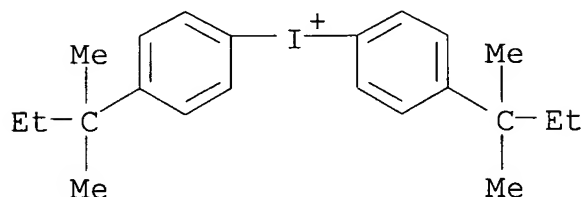
RN 475997-03-6 HCA

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with
4-methylbenzenesulfinic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

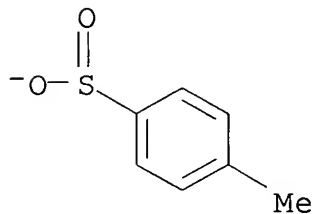
CMF C22 H30 I



CM 2

CRN 17223-96-0

CMF C7 H7 O2 S



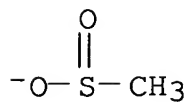
RN 475997-04-7 HCA

CN Sulfonium, triphenyl-, methanesulfinate (9CI) (CA INDEX NAME)

CM 1

CRN 43633-03-0

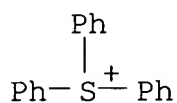
CMF C H3 O2 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



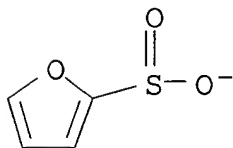
RN 475997-05-8 HCA

CN Sulfonium, triphenyl-, 2-furansulfinat (9CI) (CA INDEX NAME)

CM 1

CRN 124582-07-6

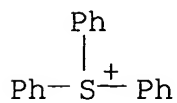
CMF C4 H3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



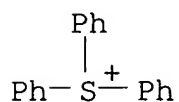
RN 475997-06-9 HCA

CN Sulfonium, triphenyl-, benzenesulfinat (9CI) (CA INDEX NAME)

CM 1

CRN 18393-55-0

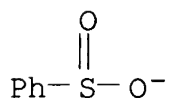
CMF C18 H15 S



CM 2

CRN 16722-50-2

CMF C6 H5 O2 S



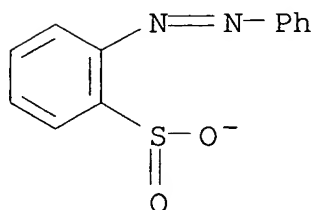
RN 475997-08-1 HCA

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with
2-(phenylazo)benzenesulfinic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 475997-07-0

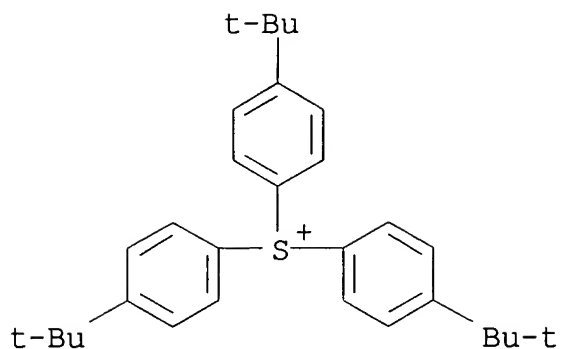
CMF C12 H9 N2 O2 S



CM .2

CRN 91815-56-4

CMF C30 H39 S



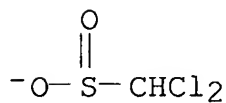
RN 475997-10-5 HCA

CN Sulfonium, bis(4-chlorophenyl)phenyl-, salt with
dichloromethanesulfinic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 475997-09-2

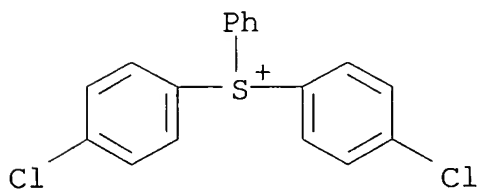
CMF C H Cl2 O2 S



CM 2

CRN 127855-17-8

CMF C18 H13 Cl2 S



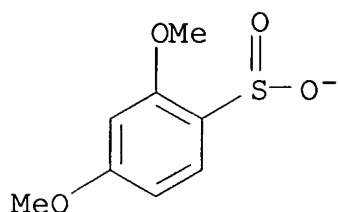
RN 475997-12-7 HCA

CN Sulfonium, methyldiphenyl-, salt with 2,4-dimethoxybenzenesulfinic
acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 475997-11-6

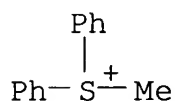
CMF C8 H9 O4 S



CM 2

CRN 29245-68-9

CMF C13 H13 S



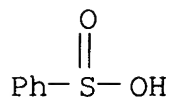
IC ICM G03F007-00
ICS B41N001-14; G03F007-004
CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 475996-99-7 475997-00-3 475997-02-5
475997-03-6 475997-04-7 475997-05-8
475997-06-9 475997-08-1 475997-10-5
475997-12-7
RL: TEM (Technical or engineered material use); USES (Uses)
(radical initiators; heat-sensitive material composition for lithog.
printing plate precursors)

L33 ANSWER 2 OF 4 HCA COPYRIGHT 2005 ACS on STN
131:124054 Solution and method for pretreating copper surfaces of circuit boards. Grieser, Udo; Meyer, Heinrich (Atotech Deutschland G.m.b.H., Germany). Ger. Offen. DE 19830038 A1 19990805, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1998-19830038 19980626. PRIORITY: DE 1998-19806190 19980203.
AB A solution is claimed for improving the adhesion of copper patterns to printed circuit boards. The solution consists of H2O2, an acid, a nitrogen heterocycle containing S, Se, and/or Te and an adhesive compound
from sulfinic acids, selenic acid, telluric acid, a chalcogen heterocycle, and a telluronium salt.
IT 873-55-2, Sodium benzenesulfinate 4270-70-6, Triphenylsulfonium chloride

RL: TEM (Technical or engineered material use); USES (Uses)
(solution and method for pretreating copper surfaces of circuit boards)

RN 873-55-2 HCA

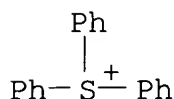
CN Benzenesulfinic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

RN 4270-70-6 HCA

CN Sulfonium, triphenyl-, chloride (8CI, 9CI) (CA INDEX NAME)



● Cl⁻

IC ICM C23F001-18

ICS C23C022-52; H05K001-03

CC 76-3 (Electric Phenomena)

IT 95-14-7, 1H-Benzotriazole 96-50-4, 2-Aminothiazole 556-90-1,
2-Amino-4-oxothiazoline **873-55-2**, Sodium benzenesulfinic acid
1115-84-0, L-Methionine methylsulfonium chloride 1758-73-2,
Formamidinesulfinic acid **4270-70-6**, Triphenylsulfonium
chloride 4418-61-5, 5-Aminotetrazole 6996-92-5, Benzeneselenic
acid 7664-93-9, Sulfuric acid, uses 7722-84-1, Hydrogen
peroxide, uses 7783-08-6, Selenic acid 11120-48-2, Telluric acid
13494-80-9D, Tellurium, telluronium salt, uses 22288-78-4, Methyl
3-aminothiophene-2-carboxylate 56531-89-6, 1,2,4-Thiadiazol-3-
amine

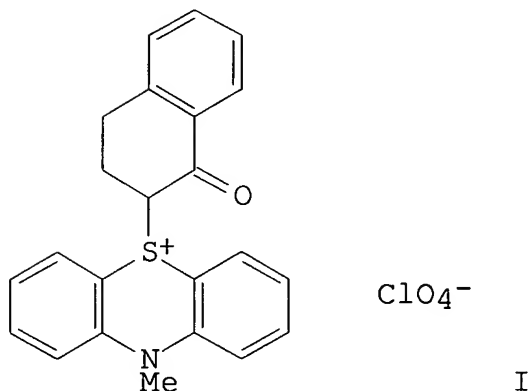
RL: TEM (Technical or engineered material use); USES (Uses)
(solution and method for pretreating copper surfaces of circuit boards)

L33 ANSWER 3 OF 4 HCA COPYRIGHT 2005 ACS on STN

87:23182 Ion radicals. 39. Reactions of 10-methyl- and
10-phenylphenothiazine cation radical perchlorates with ketones.
Padilla, A. Gregory; Bandlish, Baldev K.; Shine, Henry J. (Dep.

Chem., Texas Tech. Univ., Lubbock, TX, USA). Journal of Organic Chemistry, 42(11), 1833-6 (English) 1977. CODEN: JOCEAH. ISSN: 0022-3263. OTHER SOURCES: CASREACT 87:23182.

GI



AB Reactions of 10-methyl- and 10-phenylphenothiazine cation radical perchlorate with MeCOEt, cyclopentanone, cyclohexanone, and 1-tetralone gave oxoalkyl sulfonium perchlorates, e.g., I, in which substitution at the α -position of the ketones had occurred. Similar reactions were carried out between 10-methylphenothiazine and Me₂CHCOME, MeCOPh, and 1-indanone. Several of the sulfonium salts were converted into the corresponding ylides by treatment with base. Reaction of I with nucleophiles gave good yields of 2-substituted indanones.

IT **61723-11-3P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and nucleophilic substitution reactions of)

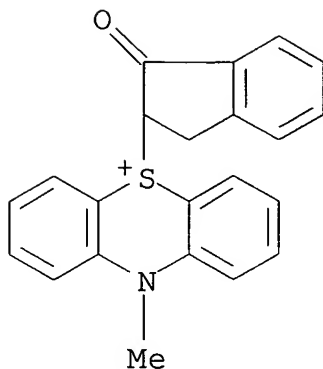
RN 61723-11-3 HCA

CN 10H-Phenothiazinium, 5-(2,3-dihydro-1-oxo-1H-inden-2-yl)-10-methyl-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 61723-10-2

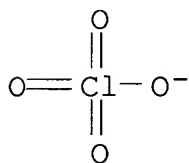
CMF C22 H18 N O S



CM 2

CRN 14797-73-0

CMF Cl O4

IT **61723-31-7P 61723-33-9P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(preparation and reaction with amine, ylide from)

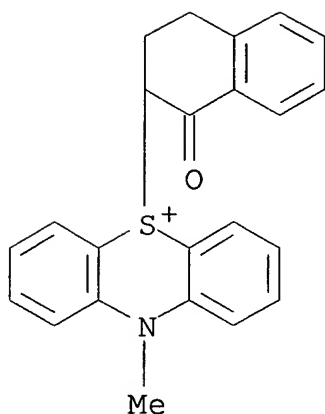
RN 61723-31-7 HCA

CN 10H-Phenothiazinium, 10-methyl-5-(1,2,3,4-tetrahydro-1-oxo-2-naphthalenyl)-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 61723-30-6

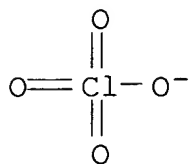
CMF C23 H20 N O S



CM 2

CRN 14797-73-0

CMF C1 O4



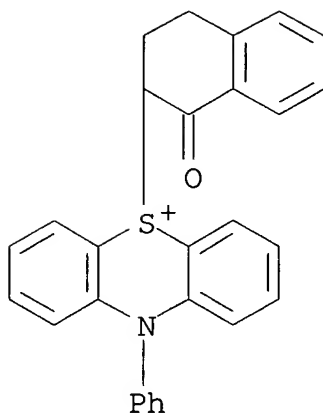
RN 61723-33-9 HCA

CN 10H-Phenothiazinium, 10-phenyl-5-(1,2,3,4-tetrahydro-1-oxo-2-naphthalenyl)-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 61723-32-8

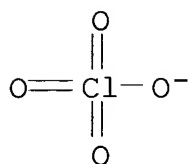
CMF C28 H22 N O S



CM 2

CRN 14797-73-0

CMF Cl 04

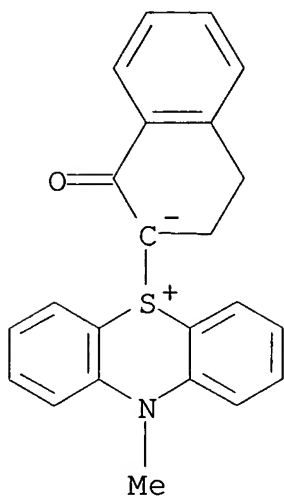


IT 61723-37-3P 61723-38-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

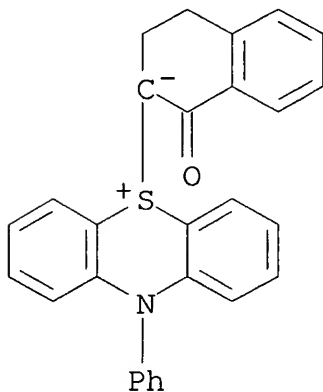
RN 61723-37-3 HCA

CN 10H-Phenothiazinium, 10-methyl-, 5-(3,4-dihydro-1-oxo-2(1H)-
naphthalenylidene) (9CI) (CA INDEX NAME)



RN 61723-38-4 HCA

CN 10H-Phenothiazinium, 10-phenyl-, 5-(3,4-dihydro-1-oxo-2(1H)-naphthalenylide) (9CI) (CA INDEX NAME)

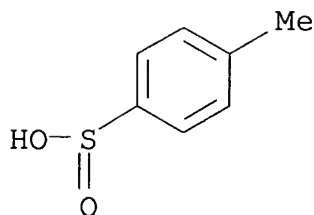


IT **824-79-3**

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction with oxoindanyldihydromethylphenothiazine perchlorate)

RN 824-79-3 HCA

CN Benzenesulfinic acid, 4-methyl-, sodium salt (9CI) (CA INDEX NAME)



● Na

- CC 28-15 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 26
- IT **61723-11-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(preparation and nucleophilic substitution reactions of)
- IT 61723-17-9P 61723-25-9P 61723-29-3P **61723-31-7P**
61723-33-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(preparation and reaction with amine, ylide from)
- IT 1775-27-5P 61723-05-5P 61723-06-6P 61723-07-7P 61723-09-9P
61723-13-5P 61723-15-7P 61723-19-1P 61723-21-5P 61723-23-7P
61723-27-1P 61723-34-0P 61723-35-1P 61723-36-2P
61723-37-3P 61723-38-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- IT 110-86-1, reactions 140-89-6 540-72-7 **824-79-3**
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction with oxoindanyldihydromethylphenothiazine
perchlorate)

L33 ANSWER 4 OF 4 HCA COPYRIGHT 2005 ACS on STN

84:16499 Ion radicals. XXXV. Reactions of thianthrene and phenoxathiin cation radicals with ketones. Formation and reactions of β -ketosulfonium perchlorates and ylides. Kim, Kyongtae; Mani, Serugudi R.; Shine, Henry J. (Dep. Chem., Texas Technol. Univ., Lubbock, TX, USA). Journal of Organic Chemistry, 40(26), 3857-62 (English) 1975. CODEN: JOCEAH. ISSN: 0022-3263.

AB Thianthrene cation radical perchlorate and phenoxathiin cation radical perchlorate react with ketones to give, in most cases, a β -ketoalkylsulfonium perchlorate and the parent heterocycle (thianthrene or phenoxathiin) in equimolar amts. Reaction with diketones or β -keto esters leads, in some cases, directly to a

S ylide. Some of the β -ketosulfonium perchlorates were themselves easily converted into S ylides by treatment with base. Reaction of selected β -ketosulfonium perchlorates with nucleophiles led easily, also, to displacement of the parent heterocycle and formation of an α -substituted ketone bearing the nucleophile at the α -C atom.

IT **56817-79-9P**

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

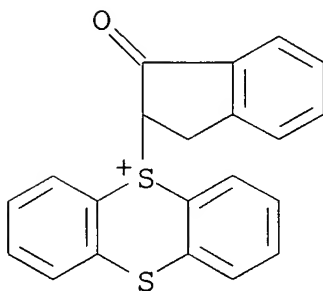
RN 56817-79-9 HCA

CN Thianthrenium, 5-(2,3-dihydro-1-oxo-1H-inden-2-yl)-, perchlorate
(9CI) (CA INDEX NAME)

CM 1

CRN 56817-78-8

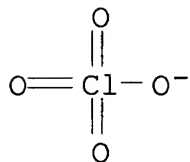
CMF C21 H15 O S2



CM 2

CRN 14797-73-0

CMF Cl O4

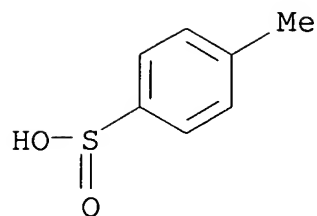


IT **824-79-3**

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with sulfonium perchlorates)

RN 824-79-3 HCA

CN Benzenesulfinic acid, 4-methyl-, sodium salt (9CI) (CA INDEX NAME)



● Na

CC 22-4 (Physical Organic Chemistry)
 IT 31378-03-7P 55116-86-4P 55116-88-6P 55116-90-0P 55116-97-7P
 55116-98-8P 56817-60-8P 56817-62-0P 56817-64-2P 56817-66-4P
 56817-68-6P 56817-70-0P 56817-72-2P 56817-74-4P 56817-76-6P
 56817-77-7P **56817-79-9P** 56817-81-3P 56817-82-4P
 56817-83-5P 56817-84-6P 56817-85-7P 56817-87-9P 56817-88-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 IT 140-89-6 **824-79-3**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with sulfonium perchlorates)

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